What is claimed is:

1. A projection display apparatus comprising:

a light source for emitting light;

a color separator for separating the light emitted from the light source into first, second, and third light components corresponding to three primary colors;

first, second, and third light valves for modulating the first, second, and third light components, respectively;

a color synthesizer for chromatically synthesizing the first, second, and third light components, which have been respectively modulated by the light valves, to form synthesized light; and

a projecting section for projecting the synthesized light,

wherein the color synthesizer comprises multiple prisms, wherein said multiple prisms have first and second dichroic surfaces having different wavelength selection characteristics from each other, and wherein said multiple prisms have a prism surface that satisfies a total reflection requirement for the third light component, and

wherein (i) the first dichroic surface is at a 40° to 50° angle relative to an optical axis of the projecting section, and is for synthesizing the first and second light components, (ii) the second dichroic surface is for synthesizing the first and second light components, which have been synthesized by the first dichroic surface, and the third light component after being reflected by said prism surface, and (iii) the first, second, and third light components thus synthesized by the first and second dichroic surfaces exit the color synthesizer via said prism surface.

2. A projection display apparatus in accordance with claim 1, wherein each of the first, second, and third light valves is a transmission type of light valve.

3. A projection display apparatus in accordance with claim 1, wherein the first dichroic surface is approximately at a 45° angle relative to the optical axis of the projecting section.

4. A projection display apparatus in accordance with claim 1, further comprising a relay optical system located in the light path of the third light component.

5. A projection display apparatus in accordance with claim 1, wherein the first and second light components respectively strike the first and second transmission-type light valves via light paths that are the same length or substantially the same length, the third light component strikes the third transmission-type light valve via a light path that is a different length from the light path of the first or second light components.

6. A projection display apparatus in accordance with claim 1, wherein the color separator comprises first and second dichroic mirrors, wherein the first dichroic mirror separates the first light component from the second, and third light components, and the second dichroic mirror then separates the second light component from the third light component.

7. A projection display apparatus in accordance with claim 6, wherein a reflective surface of the first dichroic mirror is parallel or substantially parallel to the first dichroic surface.

8. A projection display apparatus comprising:

a light source for emitting light;

first, second, and third light valves for respectively modulating first, second, and third light components of the light emitted by the light source to form first, second, and third modulated light components;

a light manifold for separating the light emitted from the light source into said first, second, and third light components, and for synthesizing said first, second, and third modulated light components to form synthesized modulated light; and

a projecting section for projecting said synthesized modulated light,

wherein the light manifold comprises multiple prisms, wherein said multiple prisms

have first and second dichroic surfaces having different wavelength selection characteristics from each other, and wherein said multiple prisms have a prism surface that satisfies a total reflection requirement for the third light component, and

wherein (i) the first dichroic surface is at a 40° to 50° angle relative to an optical axis of the projecting section, and is for synthesizing the first and second light components, (ii) the second dichroic surface is for synthesizing the first and second light components, which have been synthesized by the first dichroic surface, and the third light component after being reflected by said prism surface, and (iii) the first, second, and third light components thus synthesized by the first and second dichroic surfaces exit the light manifold via said prism surface.

9. A projection display apparatus in accordance with claim 8, wherein each of the first, second, and third light valves is a reflective type of light valve.

10. A projection display apparatus in accordance with claim 8, wherein the first dichroic surface is approximately at a 45° angle relative to the optical axis of the projecting section.

11. A projection display apparatus in accordance with claim 8, further comprising a polarized beam splitter located in the light path between the light manifold and the projecting section.

12. A projection display apparatus in accordance with claim 11, wherein the polarized beam splitter is also located in the light path between the light source and the light manifold.

13. A projection display apparatus in accordance with claim 8, wherein the first and second light components respectively strike the first and second reflective light valves via light paths that are the same length or substantially the same length, the third light component

strikes the third reflective light valve via a light path that is a different length from the light path of the first or second light components.

14. An image capturing apparatus comprising:

a taking lens unit for receiving light to be imaged;

a color separator for separating light from the taking lens unit into first, second, and third light components; and

first, second, and third imaging devices for converting the first, second, and third light components, respectively, into image data,

wherein the color separator comprises multiple prisms, wherein said multiple prisms have first and second dichroic surfaces having different wavelength selection characteristics from each other, and a prism surface that satisfies a total reflection requirement for the third light component, and

wherein (i) said light to be imaged enters the color synthesizer via said prism surface, (ii) the second dichroic surface is for separating said first and second light components from said third light component, (iii) the first dichroic surface is at a 40° to 50° angle relative to the optical axis of the taking lens unit, and is for separating the first and second light components from each other.

15. An image capturing apparatus in accordance with claim 14, wherein the first dichroic surface is approximately at a 45° angle relative to the optical axis of the taking lens unit.

16. An image capturing apparatus in accordance with claim 14, further comprising first, second, and third optical filters respectively located in the light paths between the color separator and the first, second, and third imaging devices.

17. An image capturing apparatus in accordance with claim 16, wherein said first, second, and third optical filters are low-pass optical filters suitable for spatial filtering.

18. An image capturing apparatus in accordance with claim 14, wherein at least one of said first, second, and third imaging devices is selected from a group consisting of charge-coupled devices, photo diode arrays, and complementary metal oxide semiconductors.

19. An image capturing apparatus in accordance with claim 14, wherein the first and second light components respectively strike the first and second imaging devices via light paths that are the same length or substantially the same length, and the third light component strikes the third imaging device via a light path that is a different length from the light path of the first or second light components.

20. A color synthesizing device comprising:

first, second, and third prisms,

wherein the first prism includes a first receiving surface for receiving a first light ray from a first direction normal to the first receiving surface, the second prism includes a second receiving surface for receiving a second light ray from a second direction normal to the second receiving surface, and the third prism includes a third receiving surface for receiving a third light ray from a third direction normal to the third receiving surface,

wherein the first prism includes a first exit surface for allowing the thus received first light ray to pass from the first prism to the second prism,

wherein the second prism includes a first synthesizing surface for reflecting the thus received second light ray while receiving the first light ray from the first prism, so as to synthesize the first and second light rays,

wherein the second prism includes a second exit surface for allowing the thus synthesized first and second light rays to pass from the second prism to the third prism,

wherein the second light ray is synthesized with the first light ray before striking the second exit surface, and

wherein the third prism includes a second synthesizing surface for reflecting the third light ray while receiving the synthesized first and second light rays from the second prism, so as to synthesize the first, second, and third light rays, and a third exit surface for both

reflecting the third light ray and allowing the synthesized first, second, and third light rays to exit from the color synthesizer.

21. A color synthesizing device in accordance with claim 20, wherein an angle between a direction normal to the third exit surface and each of the first synthesizing surface and the first exit surface is in a range from about 40° to 50°.

22. A color synthesizing device in accordance with claim 21, wherein the angle between the direction normal to the third exit surface and each of the first synthesizing surface and the first exit surface is 45°.

23. A color synthesizing device in accordance with claim 20, wherein an angle between (a) the second light ray after being received by the second receiving surface but before being synthesized with the first light ray, and (b) the first light ray after being received by the first receiving surface but before being synthesized with the second light ray, is in a range from about 80° to 100°.

24. A color synthesizing device in accordance with claim 23, wherein the angle between (a) the second light ray after being received by the second receiving surface but before being synthesized with the first light ray, and (b) the first light ray after being received by the first receiving surface but before being synthesized with the second light ray is 90°.

25. A color synthesizing device in accordance with claim 20, wherein adjacent portions of the second exit surface and the second synthesizing surface are fixed to one another in such a way that they are free from air gaps.